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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,005	07/29/2008	Angela Bardotti	PAT051773-US-PCT	6976

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EXAMINER	
OGUNBIYI, OLUWATOSIN A	
ART UNIT	PAPER NUMBER
1645	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/593,005	BARDOTTI ET AL.	
	Examiner	Art Unit	
	OLUWATOSIN OGUNBIYI	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *14-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 17-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/15/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-21 are pending in the application. Claims 1-13 and 17-21 are under examination. Claims 14-16 are withdrawn from further consideration.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). It is noted, however, a certified copy of the foreign priority application United Kingdom 0406013.3 (3/17/04) has not been received from the international bureau. Applicant may file a certified copy of the foreign application as required by 35 U.S.C. 119(b).

Drawings

The drawings in this application have been accepted. No further action by Applicant is required.

Information Disclosure Statement

The information disclosure statement filed 8/15/08 has been considered. An initialed copy is enclosed.

Election/Restrictions

Applicant's election of Group I claims 1-13 and 17-21 in the reply filed on 9/26/10 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 14-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/26/10.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Ho et al Vaccine 19 (2001) 716-725.

Claim 17 is drawn to a computer apparatus adapted to perform the process of any one of claims 1 to 12.

Claim 18 is drawn to a computer program for analysing the saccharide content of a composition as defined in claim 1, comprising a program module for: (a) receiving data on the sialic acid content, and on the glucose and/or galactose content, of a sample; and (b) calculating from those data the content of capsular saccharide from serogroup C and from serogroup W135 and/or Y.

Ho et al discloses a computer apparatus i.e. a HPAEC-PAD using a BioLC chromatography system with CarboPac PA-1 guard and analytical columns (Dionex, UK) to quantify monosaccharide i.e. sialic acid of meningococcal C-CRM 197 conjugate vaccine and a computer program used to program the runs and data analysis i.e.

PeakNet 5.1 software (Dionex) for analyzing the saccharide content of said composition. Said apparatus can be adapted to perform the process of claim 1 absent other evidence to the contrary.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 1-11 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryall et al WO 02/058737 8/1/02 , cited in IDS in view of Ho et al Vaccine 19 (2001) 716-725 and Claus et al. Mol Gen Genet (1997) 257:28-34.

Claim 1 and dependent claims are drawn to a process for analysing the saccharide content of a composition, wherein:(a) the composition comprises a capsular saccharide from serogroup C of Neisseria meningitidis and one or both of: (i) a capsular saccharide from serogroup W135 of Neisseria meningitidis; and/or (ii) a capsular saccharide from serogroup Y of Neisseria meningitidis; (b) the process comprises a step of analysing the sialic acid content of the composition, and: (i) if the composition includes a serogroup W135 saccharide, a step of analysing the galactose content of the composition; (ii) if the composition includes a serogroup Y saccharide, a step of analysing the glucose content of the composition;(c) if the composition includes a serogroup W135 saccharide, the content of serogroup W135 saccharide in the composition is determined according to the results of the galactose analysis from step (b);(d) if the composition includes a serogroup Y saccharide, the content of serogroup Y saccharide in the composition is determined according to the results of the glucose analysis from step (b); and(e) the content of serogroup C saccharide in the composition is determined by comparing the results of the sialic acid analysis with: (i) if the composition includes a serogroup W135 saccharide but not a serogroup Y saccharide,

the results of the galactose analysis from step (b); (ii) if the composition includes a serogroup Y saccharide but not a serogroup W135 saccharide, the results of the glucose analysis from step (b); or (iii) if the composition includes both a serogroup W135 saccharide and a serogroup Y saccharide, the combined results of the glucose and galactose analyses from step (b).

Claim 11 is drawn to process for analysing a composition, wherein:(a) the composition comprises a conjugate of a capsular saccharide from serogroup C of Neisseria meningitidis and one or both of: (i) a conjugate of a capsular saccharide from serogroup W135 of Neisseria meningitidis; and/or (ii) a conjugate of a capsular saccharide from serogroup Y of Neisseria meningitidis; (b) the composition may comprise the capsular saccharides in unconjugated form;(c) the content of any unconjugated capsular saccharides is determined by the process of any one of claims 1 to 7;(d) the content of conjugated capsular saccharides is determined by the process of any one of claims 1 to 7; and, optionally,(e) the ratio of conjugated:unconjugated saccharide in the composition is calculated for one or more of the capsular saccharides.

Ryall et al in example 6 paragraphs 64-66 teach a method of determining the quantity of each serogroup polysaccharide present in a formulation of a multivalent meningococcal A, C, W-135 and Y capsular polysaccharide diphtheria conjugate vaccine by component saccharide analysis using high pH anion-exchange chromatography with pulsed amperometric detection. The method of Ryall et al further comprises determining the quantity of protein and the pH of the vaccine.

Ryall et al does not teach that said method comprising analyzing the sialic acid content of the composition (serogroup C) and comparing with the galactose content of the composition (serogroup W135) and the glucose content of the composition (serogroup C) and does not teach treating the composition in order to depolymerize the capsular saccharides to give their constituent monosaccharides.

Ho et al teach the assessment of stability of meningococcal C-CRM 197 glycoconjugate vaccine by measuring the monosaccharide content (sialic acid) using depolymerization (hydrolysis) followed by high pH anion-exchange chromatography with pulsed amperometric detection for measuring sialic acid. See abstract and p. 718 section. 2.4.

Claus et al teach that the capsular saccharide of N. meningitidis serogroup W135 comprises galactose, and that of serogroup Y comprises glucose. See p. 28 column 2.

It would have been prima facie obvious to one of ordinary skill in the art at the time the instant invention was made that the saccharide analysis of Ryall et al using high pH anion-exchange chromatography with pulsed amperometric detection would involve depolymerization of the capsular saccharides within the mixture to obtain monosaccharide in order to perform the saccharide analysis using high pH anion-exchange chromatography with pulsed amperometric detection which will quantitate and help one of skill in the art to analyze and compare the different unique monosaccharide structures of each of the capsular saccharides of the different N. meningitidis serotypes i.e. sialic acid for serogroup C, galactose for serogroup W135 and glucose for serogroup Y, thus resulting in the instant invention with a reasonable expectation of

success. The motivation to do so is because Ho et al teach that analyzing monosaccharide content of glycoconjugate vaccine using high pH anion-exchange chromatography with pulsed amperometric detection involves depolymerization of the oligosaccharide structure into its subunit before high pH anion-exchange chromatography with pulsed amperometric detection and Ho et al teach that the reason for quantitating the monosaccharide content of the glycoconjugate vaccine is to determine the stability and integrity of the vaccine and it would have been prima facie obvious to analyze and compare the monosaccharides unique to each serogroup i.e. sialic acid for serogroup C, galactose for serogroup W135 and glucose for serogroup Y in order to determine the stability and integrity of capsular saccharide of each serotype in the vaccine.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ryall et al WO 02/058737 8/1/02 , cited in IDS in view of Ho et al Vaccine 19 (2001) 716-725.

Claim 12 is drawn to a process for quantifying saccharides from individual serogroups within a mixture of capsular saccharides from at least two different meningococcal serogroups, wherein: (a) the different serogroups comprise serogroup C and one or both of: (i) serogroup W135 and/or (ii) serogroup Y; (b) the process comprises a step of depolymerising the capsular saccharides within the mixture, to give a depolymerised mixture; and (c) the different serogroups are quantified by comparing the monosaccharide composition of the depolymerised mixture.

Ryall et al in example 6 paragraphs 64-66 teach a method of determining the quantity of each serogroup polysaccharide present in a formulation of a multivalent meningococcal A, C, W-135 and Y capsular polysaccharide diphtheria conjugate vaccine by component saccharide analysis using high pH anion-exchange chromatography with pulsed amperometric detection. The method of Ryall et al further comprises determining the quantity of protein and the pH of the vaccine.

Ryall et al does not teach that said method of saccharide analysis comprises depolymerising the capsular saccharides into their constituent monosaccharides and quantifying the different serogroups by comparing the monosaccharide composition of the depolymerized mixture.

Ho et al teach the assessment of stability of meningococcal C-CRM 197 glycoconjugate vaccine by measuring the monosaccharide content (sialic acid) using depolymerization (hydrolysis) followed high pH anion-exchange chromatography with pulsed amperometric detection for quantitating the sialic acid. See abstract and p. 718 section. 2.4.

It would have been prima facie obvious to one of ordinary skill in the art at the time the instant invention was made that the saccharide analysis of Ryall et al using high pH anion-exchange chromatography with pulsed amperometric detection would involve depolymerization of the capsular saccharides within the mixture to obtain monosaccharide in order to perform the saccharide analysis using high pH anion-exchange chromatography with pulsed amperometric detection which will quantitate and help one of skill in the art to compare the different monosaccharide structures of each of

the capsular saccharides of the different N. meningitidis serotypes, thus resulting in the instant invention with a reasonable expectation of success. The motivation to do so is because Ho et al teach that analyzing monosaccharide content of glycoconjugate vaccine using high pH anion-exchange chromatography with pulsed amperometric detection involves depolymerization of the oligosaccharide structure into its subunit before high pH anion-exchange chromatography with pulsed amperometric detection and Ho et al teach that the reason for quantitating the monosaccharide content of the glycoconjugate vaccine is to determine the stability and integrity of the vaccine.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ryall et al WO 02/058737 8/1/02, cited in IDS.

The claim is drawn to a method for releasing a vaccine for use by physicians, comprising the steps of: (a) manufacturing a vaccine containing a conjugate of a capsular saccharide from serogroup C of Neisseria meningitidis and one or both of: (i) a conjugate of a capsular saccharide from serogroup W135 of Neisseria meningitidis; and/or (ii) a conjugate of a capsular saccharide from serogroup Y of Neisseria meningitidis; (b) analysing the amount of conjugated and/or unconjugated saccharide in the vaccine for each of said capsular saccharides; and, if the results from step (b) indicate a saccharide content acceptable for clinical use, (c) releasing the vaccine for use by physicians.

Ryall et al in example 6 paragraphs 64-66 teach a method comprising manufacturing a vaccine containing a conjugate of a capsular saccharide from

serogroup C of Neisseria meningitidis and one or both of: (i) a conjugate of a capsular saccharide from serogroup W135 of Neisseria meningitidis; and/or (ii) a conjugate of a capsular saccharide from serogroup Y of Neisseria meningitidis i.e. the vaccine is a multivalent meningococcal A, C, W-135 and Y capsular polysaccharide diphtheria conjugate vaccine and (b) analysing the amount of conjugated and/or unconjugated saccharide in the vaccine for each of said capsular saccharides i.e. Ryall et al teach the purity of the multivalent conjugate vaccine is determined by measuring the amount of unbound (unconjugated) polysaccharide in order to determine that the saccharide content is acceptable (determining purity for clinical use, see for example the clinical use in paragraph 75-79)

Although, Ryall et al teach release of the vaccine for clinical use (see paragraph 75-79), Ryall et al does not specifically teach that the vaccine is released for use by physicians.

However, it would have been prima facie obvious to one of ordinary skill in the art at the time the instant invention was made that the vaccine of Ryall et al as manufactured in the steps set forth above is released to physicians this is because the vaccine was used in a clinical setting and it is reasonably expected that the physicians are present in a clinical setting. MPEP 2141 under "Office Personal as Fact finders" states that: In short, the focus when making a determination of obviousness should be on what a person of ordinary skill in the pertinent art would have known at the time of the invention, and on what such a person would have reasonably expected to have been able to do in view of that knowledge. This is so regardless of whether the source

of that knowledge and ability was documentary prior art, general knowledge in the art, or common sense. In the instant case, it is common sense that release of the vaccine and its application in a clinical setting necessarily involves release of the vaccine for use to physicians who would be present in such a clinical setting to, for example, administer the vaccine or monitor the efficacy of the vaccine or diagnose or treat any adverse events in response to the vaccine.

Status of the Claims

Claims 1-13 and 17-21 are rejected. Claims 14-16 are withdrawn from further consideration. No claims allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLUWATOSIN OGUNBIYI whose telephone number is (571)272-9939. The examiner can normally be reached on M-F 5:30 am- 2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia Duffy can be reached on 571-272-0855. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Oluwatosin Ogunbiyi/
Examiner, Art Unit 1645